Pestic. Sci. 1998, **53**, 197–198

Book Reviews

Environmental behaviour of pesticides and regulatory aspects, ed. A. Copin, G. Houins, L. Pussemier & J. F. Salembier, COST ACTION 66 Symposium, Brussels, 26–29 April 1994, The Royal Society of Chemistry, Cambridge, UK, 1995, 513 pp., price UK £55.00.
ISBN 2-930119-03-9

This (soft-cover) monograph records the presentations at a symposium sponsored by the European Commission within the framework of COST ACTION 66. Since it is unlikely that many readers will be familiar with COST—an acronym for the French equivalent of 'European Cooperation in the Field of Scientific and Technical Research'—the special COST session which explains both COST and the specific COST ACTION 66 provides some welcome background information. The latter is said to bring together researchers from 100 laboratories in 17 countries.

The title and foreword implies a relationship between the research programme and the use of the data produced in a regulatory context. However, such a relationship is apparently only a secondary objective of COST ACTION 66 (p. 38) and the publication is essentially a collection of research reports from workers in various University Departments or Research Institutes. These vary in length and quality and some are unsuitable for publication in mainstream scientific journals without substantial modification.

The text is arranged in six sections: 1. Regulatory aspects and Role of International Organisations; 2. Sorption; 3. Transformation; 4. Ground and Surface Water Monitoring; 5. Outdoor Experiments; 6. Mathematical Models. In total, there are 12 main/non-research papers (seven in Section 1) and 94 research reports, the latter shared between platform presentations, posters and short communications.

In addition to the papers on COST, the main papers in Section 1 (43 pages) are the ubiquitous status reports from the EU, EPPO and OECD on activities related to the development of internationally acceptable test procedures for environmental risk assessment.

The quest for harmonised approaches to pesticide registration goes back at least to the work of the Council of Europe in the early 1960s, and perhaps the greatest success so far has been in agreement on lists of data requirements and in harmonising test protocols. Real progress on harmonised interpretation of data and subsequent regulatory action is slow and the harmonised use of models is really still in its infancy. The current thrust of research is to develop new or modified models rather than validate existing ones and this further delays their use in the regulatory evaluation process.

The fate of pesticides in the environment is affected by a wide range of factors and the three traditional approaches for carrying out fate assessments—laboratory tests, field tests and modelling—are well represented in the research reports.

Presumably the objective of the COST research programme is to provide enough experimental data to fully justify regulatory decisions on the environmental effects of pesticides and, ultimately, to use such a data base to predict such effects in the future through modelling and so avoid further repetitive expensive studies. At present, although research data seem to be accumulating, there is little in the publication to demonstrate the usefulness of such data in making regulatory decisions. Whilst it is valuable to generate data, it is even more valuable to establish a usable data base which can help regulators, both to make decisions and to validate speculative models. It is understood that COST ACTION 66 is to establish such a data base in the near future.

With a cost (no pun intended) of UK £55 for the raw data in this monograph, it might be worth waiting for the proposed data base.

J. A. R. Bates

Agricultural chemicals and the environment; Issues in environmental science and technology, volume 5, ed. R. E. Hester & R. M. Harrison, Royal Society of Chemistry, Cambridge, 1996, xi + 127 pp., price UK£17.50.
ISBN 0-85404-220-2.

Everyone knows about the environment, and everyone has an opinion. Most people know that modern agriculture damages the environment, and that we are all threatened by it. Many people know all this but don't know the evidence upon which this knowledge is based,

Pestic. Sci. 0031-613X/98/$17.50

and probably would be incapable of assessing it objectively if they knew it. What most people don't know is that they are often wrong.

This little book may help to restore some objectivity. It may also help students to assess the evidence correctly. The first chapter by T. M. Addiscott discusses the nitrate problem, summarising a vast amount of material, and reaches the not too complacent conclusion that the nitrate problem, as generally understood, hardly exists. There are dangers, but they should not be exaggerated. The second chapter, by A. J. D. Ferguson, M. J. Pearson and C. S. Reynolds, deals with eutrophication and algal blooms. They accept the usual understanding of the word, which is not what it actually means, enrichment. In the UK, algal blooms are a normal if occasional problem. Again these writers make clear that eutrophication is a complex phenomenon and that several conditions need to be fulfilled before a toxic bloom develops. Equally, the control of eutrophication is often not simple.

Chapter 3, by K. R. Eke, A. D. Barden and A. J. Tester, discusses agricultural pesticides and water quality. They show how the rain and river loads of many pesticides have dropped over the last twenty years. Drinking water has also improved. This area is still shrouded in many mysteries, and much research is still called for. Chapter 4, by D. Fowler, M. A. Sutton, U. Skibba and K. J. Hargreaves, discusses the fate of ammonia in the soil. They describe what is known about the cycling of ammonia from soil to atmosphere and back; the flux is apparently increasing. However, a complete treatment also involves nitrification and denitrification processes, and these have been more difficult to estimate. The influence of animals on these processes appears to be enormous.

Chapter 5, by T. Acamovic and C. S. Stewart, discusses the vexed problem of drugs and dietary additives in animal production. This subject is complicated first by the question of what constitutes a drug. It can be man-made or of natural origin ('organic'). The effect on animal growth is undeniable and often spectacular. They discuss the consequences of drug ingestion on the indelicate problem of methane generation and also the development of antibiotic resistance. Even this last is a topic about which no easy generalisations can be made. Finally, Chapter 6, by S. G. Bell and G. A. Codd, presents data on cyanobacterial toxins, often associated with algal blooms, The material covers detection, assay, and analysis, and finally risk assessment, which is far from easy and clear-cut.

The lesson to be drawn from all the material presented here is also not straightforward. It is not as alarming as some extremists might suggest, but neither does it imply that there is nothing to worry about, as others might wish. There are no grounds for complacency. It makes clear that no issues in this area are susceptible of easy solutions or choices. The most significant contributors to nitrate pollution can, in some circumstances, be organically reared sheep and cows. People of all environmental persuasions and at many levels of environmental competence will benefit from reading this book.

G. J. Leigh